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perior softness in the working of it, that, having had the promise of it, they examined the wool whilst on the sheep's backs, and agreed for it before it was shorn. This price, I find, as well from the report of the Lords' committee as also from every other source of information, is double that which the entire of the wool from any other flock in the kingdom sold for; and estimating the different weight of the fleeces, which are double the weight of those from the Saxon sheep, (those from my flock, which are chiefly ewes, averaging between three and four pounds each,) the price is also above that which the Saxon flocks produced at the same period.

I am, Sir, &c. &c.

A. AIKIN, Esq.  
Secretary, &c. &c.

JOSHUA KIRBY TRIMMER.

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No. II.

DRAINING PLOUGH.

*The Sum of FIFTEEN POUNDS was presented to Mr. ROBERT GREEN, 57, Ernest Street, Regent's Park, for his Draining Plough, a Model of which has been placed in the Society's Repository.*

[The Plough, of which the following is a description, is represented in Plate I.]

FIG. 1 is a geometrical view of the off, or right-hand side, of the plough, with the mould-boards fixed eight inches above the bottom of the plough; fig. 2 is a plan; fig. 3

an end view ; and fig. 4 a view of the left hand, or opposite side to fig. 1.

The same letters refer to the same parts in each view. *a a* are the handles of the plough : they are fixed to the upper end of an upright piece *e* by a screwed bolt and nut : they may be elevated or lowered, according as may be found most convenient, by placing the bolt *b* in different holes in the bracket *c*. *d d* is the plough-beam, which is firmly secured to two upright pieces *e* and *f*, (the bottoms of these pieces being secured in a shoe or longitudinal piece *g*) : they are about six inches wide at the upper ends, and only two inches at the bottom, as shewn in fig. 3.

The front and off-corner of the upright piece *f* is sloped off so as to tend to turn the furrow to the off or right-hand side of the plough. The sides of the plough, or upright pieces *e* and *f*, are faced with iron plates, about a quarter of an inch thick, which extend from the bottom of the shoe to the upper side of the beam *d d*, and the plate on the near or left-hand side extends from the back part of the upright piece *e* to the front of the piece *t t*, to which the coulter *m* and *n* are fixed : *h* and *i* are two mould-boards, which are fixed on the near and off-side of the plough by the screwed bolts *j* and *k* : the bolt *j* passes through the mould-boards, and also through a slit made in the side-plates, between the upright pieces *e* and *f* : there are also two iron plates *o o*, with a long slit in each, fixed to the inner sides of the mould-boards : the bolt *k* passes through the slits in the plates *o o*, and also through a hole in the upright piece *e* ; therefore, the mould-board may be raised or lowered at pleasure, and fixed in any required position. There is an iron plate *p* fixed on the front of the mould-board *i*, on the off-side of the plough ;

to the back end of the plate *p* is connected, by a joint, another iron plate *q*. *r* is a flat bar of iron, with a number of holes made in it: one end of the bar *r* is coupled to a loop, which is fixed to the inside of the plate *q*. *s* is another flat bar of iron, the ends of which are fixed to the back part of the upright piece *e*: the middle part of the bar *s* projects forward, so as to admit of the bar *r* to slide between it and the upright piece *e*: the bar *s* has also a number of holes made in it; consequently, the plate *q* may be contracted or extended as required, and secured by a pin passing through the holes in the bars *s* and *r*, and also into holes made to correspond with them in the back part of the upright piece *e*. *t t* is a square piece of timber, the thickness of the beam *d d*, and is fixed to the under side of the beam, and is further secured by the draft-iron *l*, which passes beneath it: the ends of the draft-iron are fixed to the beam by the screwed nuts *u u*. On the upper side of the beam, opposite the piece *t t*, is a guide plate *v*, the ends of which are fixed to the beam, and the middle part projects above the beam three-quarters of an inch, so as to admit of the staples *w w* to pass between it and the beam. *x x* are two other staples, which pass through the lower part of the piece *t t*: the ends of the staples are screwed, and also passed through plates, and secured by screwed nuts. The staples *w w* and *x x* are used for fixing the coulters to the sides of the beam: the coulters *m* is fixed on the near or left-hand side of the beam, and the front coulters *n* is fixed to the off-side of the beam: the staples of the coulters *n* are made long enough to admit of a piece of wood to be placed between the beam and the coulters, so as to place the two coulters at a proper distance from each other, (see the directions for using the plough). *y* is a wheel, which is fixed in the

usual way, and may be adjusted according to the depth of the drain: the draft-iron *l* has also a number of holes in it, to regulate the angle, or height of the draft-tackle *z*. There are three sockets, or points A, fitted to the plough: the width of the first to be used is three inches; the width of the second point two inches; and the width of the third point B only half an inch. Fig. 5 is a side view of B, the point of which projects three inches below the shoe, or bottom part of the plough; consequently, the bottom of the plough will not reach the bottom of the drain, but will rest on the wheel *y* and the two mould-boards *h* and *i*. Fig. 6 represents a section of the drain, as cut at three different times, according to the following directions:—

The plough must be worked with six steady horses, harnessed abreast, and about four feet apart.

For the first cut, set both the wheels and the mould-board eight inches high: set the off-side coulter one inch wider than the plough, by means of the wedge: put on the broad points, and set the coulters a quarter of an inch high, and hold the plough upright. This will make the first cut nine inches deep and five inches wide at the top, and three inches wide at the bottom; and by setting the mould-board at a proper width, by opening it, the soil will be cast away to the proper distance; and when thus fixed, it is the better way to cut out a whole day's work, or one thousand poles or rods, without changing the adjustment.

For the second cut, take away the broad point; and put on the 2-inch points, and take away the wedge from the off-side of the coulter, and set it in close, the near-side coulter remaining as before. Set the wheel five inches high, the mould-board thirteen inches, and the draft-

tackle two notches higher, and let the wheel run in the drain: the off-side coulter must be kept close to the off side of the drain, and the soil from this second cut must be turned out on the contrary side to the first. At this cut, the drain will be about fourteen inches deep.

For the third cut, put on the narrowest point, and set the coulter half an inch higher than the bottom of the point, the wheel five inches high, the mould-board sixteen inches high, and put the draft-tackle up to the top notch: the wheel is to run in the drain as before, and the soil is to be turned out on the same side as the last: hold the plough upright, and go steady. This completes the drain. It is particularly requisite to have the irons well sharpened; and when they get to the end each time, pull out the pin of the mould-board, or the weight of the plough will injure it.

The season for draining is from November to February; for at this time the land being wet, the surface-water will flow into the first cut, and assist the operations. The top sod, if good, will not break from end to end, and the same will make good the drain without any materials, by turning the grass-side downwards. In doing so, have a piece of wood, about four feet long, five inches deep, two inches wide at the top, and half an inch wide at the bottom, fastened to a cord of convenient length. The sod is to be trodden down well, being supported by the pole; and this latter is to be drawn along in proportion as the filling-in proceeds. The drain being thus left empty is a saving of materials; and on land where moles prevail, such drains may, at any future time, be cut across with the plough, without any difficulty or obstruction. These drains will stand well seven years.

In some soils the grass is unkind, and will not cut well

with the draining plough. In such cases, it is better to open with the common plough the first furrow, but not deep. The sod, however, being necessarily broken, the drain cannot be made good as before; but wheat-straw well twisted like a hay-band, about the size of a man's arm, but not larger, is a better material than wood: it will last for fourteen or sixteen years, and about half a load of straw will secure one acre, or 160 poles.

On ploughed land, the common plough must be used to draw out the furrow, and by two bouts it is to be cut out about twelve inches wide, and six or seven inches deep, before using the draining plough; and, by this method, the drain may be cut twenty-four inches deep.

This plough may also be used to great advantage as a trenching plough, for planting trees. In this case, the coulter is to be removed from the off side, the 2-inch point is to be put on, and the wheel is to be set about nine inches high, and is to follow the common plough in each furrow. An acre a day may thus be trenched, at less than half the expense of spade work.

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CERTIFICATES.

*Brockham Court Lodge, near Dorking,*

SIR,

*March 29, 1829.*

IN reply to your inquiries respecting my opinion of your draining plough, I have to state, that from the trial I have made upon land that is wet and clayey, it has fully answered my expectations; as, with six horses, two men, and a stout lad, I have opened drains at the rate of 600 rods per day, doing the work in a satisfactory manner.

To any person having a large tract of land of the above description, provided it is free from stones, I can with confidence recommend one of your ploughs as a valuable addition to his other agricultural implements.

I am, Sir, &c. &c.

Mr. ROBERT GREEN.

P. PEACHEY.

SIR,

*Kidbrooke, Blackheath, March 30, 1829.*

THE under-draining plough invented by you, which you sent here in February last, I have made trial of on a meadow-field of strong clay loam. It opened 700 rods, or poles, in seven hours, eighteen inches deep, five inches wide at top, and half an inch at bottom. This plough was drawn by six horses.

I find the expense, in cutting out, filling in, including straw when required, not to exceed  $1\frac{1}{2}d.$  per pole. The expense of draining by spade labour, in a similar manner, will cost  $4\frac{1}{2}d.$  per pole on same soil. This is a saving of 200 per cent, and the operation is very expeditious. I consider it much superior to the mole plough, having tried both on my farm and on similar soil.

I have no hesitation in stating that this plough will prove an invaluable implement for draining wet meadow-land. The work is best performed when the land is in a wet state, as the plough cuts out the drains cleanest at that time, and with greater facility.

I am, Sir, &c. &c.

Mr. ROBERT GREEN.

R. DICKSON.